# SCREENING OF HYPERTENSIVE PATIENTS FOR HYPERLIPIDAEMIAS

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## ABSTRACT

**OBJECTIVES:** This study was carried to screen out randomly hypertensive patients between 20 to 60 years of age; and to emphasize the presence of high lipids levels in hypertensive patients in our setup.

**DESIGN:** A Cross sectional study

**PLACE AND DURATION:** This study was conducted in the out door patients department of Liaquat University Hospital Hyderabad in the month of March 2003.

**PATIENTS AND METHODS:** Thirty hypertensive patients were screened randomly for hypercholesterolemia after obtaining their baseline information. Their ages were 20 to 60 years.

**RESULTS:** About forty seven percent of hypertensive patients, out of thirty patients were found to have plasma cholesterol level above 200 mg/dl and about fifty three percent of the patients with hypertension had plasma cholesterol level below 200 mg/dl.

**CONCLUSION:** Our findings show that hypertensive patients in our setup have significantly high abnormal lipid levels. So, while managing such patients our physicians should be careful in this regard.

**KEY WORDS:** *Hypertension. Hypercholesterolaemia.*

## INTRODUCTION

Hyperlipidaemias cause hypertension indirectly by accelerating atherosclerosis. Both hypertension and hypercholesterolaemia are strong individual risk factors for ischaemic heart disease. But when combined can increase the risk for ischaemic heart disease drastically. People with combination of risk factors such as hypertension, hyperlipidaemias, smoking and diabetes have the greatest risk of developing coronary heart disease.

Hypercholesterolaemia is associated with increased incidence of cardiac events and characterized by impaired coronary vascular function, possibly mediated partly through increased pro-oxidative conditions in plasma and tissue. It has been studied that experimental hypercholesterolaemia is associated with blunted myocardial perfusion and increased vascular permeability responses in vivo to increased cardiac demand, which may be partly mediated by a shift in oxidative status[1-2]. The incidence of coronary artery disease rises aś blood pressure rises and the excess risk is related to both systolic and diastolic blood pressure. It has been observed that myocardial infarction patients displayed higher WBC count, higher fibrinogen, lower HDL cholesterol, lower apoA1 and higher lipoprotein (a) than patients who presented an uneventful clinical course that is stable angina without myocardial infarction[3].

Patients with familial hyperlipidaemias have a high incidence of premature coronary artery disease and many epidemiological studies have demonstrated a positive correlation between mean population plasma cholesterol and morbidity and death from coronary disease. The excess risk is closely related to plasma concentration of low-density lipoprotein (LDL) cholesterol and is inversely related to high-density lipoprotein (HDL) cholesterol concentration. There are several potential mechanisms by which HDLs protect against the development of vascular disease. Different functions of HDLs complement their activity in arterial cholesterol removal by providing an excellent rationale for favorably influencing pathological processes underlying a variety of clinical conditions, such as accelerated atherosclerosis, acute coronary syndromes and restenosis after coronary angioplasty, through a chronic or acute elevation of plasma HDL concentration[4]. Large-scale randomized clinical trials have shown that lowering high cholesterol concentrations mainly by drugs reduces the risk of cardiac events. It is an observation that hyperlipidaemias are under treated. Only 1 patient out of 6 in the highest-risk class coronary artery disease patients who received lipid lowering drug treatment accomplished the LDL-Cholesterol goal of 100 mg/dl defined by the third report of the U. S. National Cholesterol Education Program (NCEP)[5]. Therefore, while managing the patients with

hypertension it is necessary to know which hypertensive patients have abnormal lipid levels? Though low density lipoprotein and ratio between low density lipoprotein and total cholesterol are more specific to define the added risk. But cholesterol level will help us to screen high risk patients. The cholesterol level below 250mg/dl is acceptable for normal persons. But patients having other risk factors the cholesterol level should be below 180mg/dl. In the large scale multiple risk factor intervention trial hypertensive men showed an increased risk for coronary artery disease with every increment in serum cholesterol from levels of 182 mg/dl[6]. Therefore, we conducted this study to see the hyperlipidemias in hypertensive patients through screening in our setup.

## PATIENTS AND METHODS

This cross sectional study was carried out in the out door patients department (OPD) of Liaquat University Hospital Hyderabad in the month of March 2003. Thirty hypertensive patients were screened randomly for hypercholesterolaemia. Their ages were between 20 to 60 years. The complete history and physical examination was recorded from each individual. Blood pressure was measured by mercury sphygmomano-meter from right arm kept at heart level after five minutes rest. Appearance of korat-koff's sound was taken as systolic and disappearance as diastolic blood pressure. Three readings were taken and an average of last two was recorded as the blood pressure of patient.

Blood cholesterol and blood sugar was determined by dry chemistry method utilizing a Boehringer mainheim Accutrend G. C. Blood was obtained from finger prick using mechanical gun. Patients were called in a hypertensive clinic they were not fasting and screened randomly without considering their drug regime or etc. Their electrocardiograph was also taken. An informed consent was obtained from all the patients included in this study.

## RESULTS

In this study, thirty hypertensive patients were screened for plasma cholesterol level. Fourteen patients were male and sixteen were female. Out of these patients, two groups were made according to age. Group A, 20 years to 40 years of age and Group B, 41 years to 60 years of age. Nine (30%) hypertensive patients were in age group A, and twenty one (70%) hypertensive patients were in age group B. **(Table I).** Blood pressure readings of patients varied from 200---150/120---100 mmHg. Of these thirty hypertensive patients, fourteen (46. 6%) patients had plasma cholesterol level above 200mg/dl and of these hypercholesterolaemic patients, five (35.8%) were in

age group A and nine (64. 3%) in age group B. Among these fourteen patients male and female distribution was equal. **(Table II)**

Furthermore, seven (50%) of those hypercholesterolemic patients had ischaemic heart disease as evident on history and ECG changes. And other seven (50%) patients had diabetes mellitus as evident on history and blood sugar levels.

### Table I showing age distribution of cases(n=30)

| Age Group | No. of Cases |
|---|---|
| 20 to 40 Years(Group A) | 9(30%) |
| 41 to 60 Years(Group B) | 21(70%) |

### Table II showing hypercholesterolemia in cases (n=30)

| Plasma Cholesterol >200mg/dl | Plasma Cholesterol <200mg/dl |
|---|---|
| In Group A: 5 Patients | In Group A: 4 Patients |
| In Group B: 9 Patients | In Group B: 12 Patients |
| Total: 14 Patients (46.6%) | Total: 16 Patients (53.4%) |

## DISCUSSION

Coronary artery disease remains the leading cause of death in developed countries, and advancing age increases the risk for this disease. Elevated serum concentration of total cholesterol and low density lipoprotein (LDL) cholesterol and low serum concentration of high density lipoprotein (HDL) cholesterol have been recognized as independent risk factors for coronary artery disease[7]. ApoA-I is the primary protein component of HDL and is thought to play an important role in mediating several of the atheroprotective effects of HDL. An inverse and independent association between plasma levels of apolipoprotein (apo) A-I and coronary heart disease in humans is well established The studies demonstrate that despite normal levels of HDL-C, apoA-I deficiency is associated with a significant loss of protection from the formation of atherosclerosis[8]. It has been found that the risk of a coronary event in men with the lipoprotein (a) • 0.2 g/liter was 2.7 times that of men with lower levels. This increase in risk was most prominent in men with high LDL cholesterol, low HDL-C, hypertension and / or high global cardiovascular risk[9].

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